



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,290	08/23/2006	Takeo Tokai	294806US0PCT	6806
22850	7590	03/09/2010	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.			STANLEY, JANE L	
1940 DUKE STREET				
ALEXANDRIA, VA 22314			ART UNIT	PAPER NUMBER
			1796	
		NOTIFICATION DATE	DELIVERY MODE	
		03/09/2010	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/590,290	Applicant(s) TOKIAI, TAKEO
	Examiner JANE L. STANLEY	Art Unit 1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 02 February 2010.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-9 is/are rejected.
 7) Claim(s) 3 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's reply and request for continued examination filed **2 February 2010** have been fully considered. **Claims 1-9** are pending: **claims1** has been amended, **claims 2-3 and 5-6** are as originally filed and **claims 4 and 7-9** are as previously presented.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **2 February 2010** has been entered.

Claim Objections

Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. **Claim 1** from which claim 3 depends recites "R⁵ represents a methyl group" as such, the recitation of claim 3 that "R⁵ in formula (II) is a methyl group" fails to further limit the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6,261,474) in view of Kaneko et al. (US 5,801,132).

Regarding claim 1-7, Egawa et al. teaches a lubricating oil comprising a refrigerant and a polyvinyl ether compound having units (a) represented by (I) -(CH₂-C(OR)H)- and units (b) represented by (I') -(CH₂C(OR')H)- wherein R represents a hydrocarbon group with 1 to 3 carbon atoms, R' represents a hydrocarbon group with 3 to 20 carbon atoms (abstract) and wherein the mol ratio of (a) to (b) is in the range of 10:0 to 5:5 (col 5 ln 51-55). Egawa et al. teaches that R in formula (I) can include methyl (col 5 ln 11-14, ln 44-45). Furthermore, Egawa et al. teaches the polyvinyl ether having one end structure represented by (II) H-CH₂CH(OR¹)- and the other end structure represented by (III) -CH₂CH(OR²)H, wherein R¹ and R² represent hydrocarbon groups with 1 to 20 carbons (col 6 ln 38-65).

Egawa et al. teaches the refrigerant to be pentafluoroethane (abstract) and does not specifically teach a C1-C8 hydrocarbon compound. However, Kaneko et al. teaches compositions comprising similar polyvinyl ether polymers (col 2 ln 46; col 4 ln 4-38; col 5 ln 46-52; col 7 ln 12-19 and 27-33) and refrigerants (col 15 ln 53 to col 16 ln 13).

Kaneko et al. teaches hydrofluorocarbons including pentafluoroethane (col 15 ln 62) and hydrocarbons such as propane, cyclopropane, butane, isobutant and pentane (col 16 ln 5-6) to be refrigerant equivalents. Kaneko et al. and Egawa et al. are analogous art because they are both concerned with the same field of endeavor, namely refrigerant oil compositions comprising a base oil and a refrigerant. In view of the recognition by Kaneko et al. that hydrofluorocarbon refrigerants and the aforementioned hydrocarbon refrigerants are equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art to substitute the hydrofluorocarbon with a hydrocarbon refrigerant and thereby arrive at the present invention. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable (See *In re Ruff* 118 USPQ 343 (CCPA 1958; MPEP 2144.06).

Egawa et al. does not specifically teach that the mixture viscosity of the refrigerating oil composition is 0.1 mm²/s or more, or 0.5 mm²/s or more when measured at 90 °C and 2.3 MPa. However, Egawa et al. teaches that the polyvinyl ether compound has a kinematic viscosity of 5 to 200 cSt at 40 °C (col 7 ln 13-23; see Table 1-1 Examples for viscosity data at both 40 °C and 100 °C). Egawa et al. is silent as to the pressure at which the measurement(s) was/were obtained. However, as the polyvinyl ether base oil and refrigerant made obvious by Egawa et al. in view of Kaneko et al. are the polyvinyl ether and hydrocarbon claimed, it is implicit that the polyvinyl ether base oil and refrigerant would have this property, absent evidence to the contrary.

Egawa et al. does not specifically teach that the solubility of the refrigerant (instant component A) in the base oil (instant component B) is 40 mass% or less, 2 to 40 mass%, 2 to 30 mass% or 5 to 25 mass% when measured at 40 °C and 1.2 mPa. However, as the polyvinyl ether base oil and refrigerant made obvious by Egawa et al. in view of Kaneko et al. are the polyvinyl ether and hydrocarbon claimed, it is implicit that the polyvinyl ether base oil and refrigerant would have this property, absent evidence to the contrary.

Regarding claim 8, Egawa et al. in view of Kaneko et al. makes obvious the composition set forth above. Egawa et al. further teaches the average molecular weight of the polyvinyl ether compound is from 150 to 2,000 (col 7 ln 18-19).

Regarding claim 9, Egawa et al. in view of Kaneko et al. makes obvious the composition set forth above.

Egawa et al. does not specifically teach the polyvinyl ether compound (instant component B) to have an oxygen atom content of 10 mass% or more. However, Egawa et al. teaches a 150 to 2,000 MW polyvinyl ether with units (a) and (b), formulas (I) and (II), in a ratio of 10:0 to 5:5 with end-units of formulas (II) and (III), and wherein R is a hydrocarbon with 1 to 3 carbons, R' is a hydrocarbon with 3 to 20 carbons, and R¹ and R² are hydrocarbons with 1 to 20 carbons. There exists a plurality of situations in which the polyvinyl ether of Egawa et al. will intrinsically have an oxygen atom content of 10 mass% or more.

Response to Arguments

It is noted that Applicant's arguments are identical to those set forth in the after final reply filed **2 December 2009** and as such have already been substantially addressed by the Examiner in the advisory action mailed **21 December 2009** and have been included below modified only in response to the amendment of **claim 1**. In regards to the amendment to **claim 1**, it is noted that Egawa teaches the substantially overlapping R and R' units, wherein R is of C1-C3 in length and R' is of C3-C20 in length, which renders obvious the instant R⁵ being methyl and R⁶ being C2-C4 in length. Egawa also specifically teaches that R in formula (I) can be methyl (col 5 ln 11-14, ln 44-45). Applicant's amendment fails to overcome the art rejection set forth above and Applicant's arguments have not been found persuasive for the reasons set forth in the advisory action mailed **21 December 2009** and below.

Regarding Applicant's comments (see Remarks page 5), such does not constitute sufficient evidence or support that the polymers of Egawa would not also be miscible to the desired degree with a non-fluorinated hydrocarbon refrigerant. Applicant appears to be alleging that the "compatibility" discussed by Egawa constitutes complete miscibility.

Applicants assert that Egawa does not teach or suggest specific "compatibility requirements" (see Remarks page 5). As set forth in the previous office action the compatibility requirements discussed by Applicant were deemed to be properties inherent/intrinsic to the compounds and the combination thereof as based on a 103(a) rejection of a combination of two references. Applicant must provide evidence of record

demonstrating that such would not be the case and furthermore, it is noted that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants also point to *In re Antoine* regarding result-effective variables, however, the previously set forth office action did not rely on or invoke a result-effective variable argument. It is noted that instant claim 1 does not include amount limitations on either the refrigerant (A) or the base oil (B).

Applicants argue that Kaneko teaches the hydrocarbon refrigerants as "non-preferred" which constitutes a "leading-away" from the instant invention and that the hydrofluorocarbon and hydrocarbon refrigerants are not equivalent and interchangeable (see Remarks page 6). First it is noted that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments, and it is also noted that disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (See MPEP 2123 [R-5]; *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971)). Second, while Kaneko teaches that hydrogen-containing Flon refrigerants are preferred, Kaneko also teaches that other employable refrigerants may be used instead including hydrocarbon compounds such as propane, cyclopropane, butane, isobutane and pentane (See Kaneko, col 15 ln 54 to col 16 ln 7). Such constitutes a recognition by Kaneko that both fluorinated and nonfluorinated hydrocarbon refrigerants are useful in the same environment for the same predictable

result and as such are equivalent and interchangeable. Kaneko's teaching that fluorinated hydrocarbon refrigerants are preferable does not constitute a teaching away.

Applicant's arguments to the base oils taught by Kaneko (see Remarks page 6) constitutes bodily incorporation, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In pointing out that Kaneko teaches polyvinyl ether base oils, the Examiner was merely demonstrating the manner(s) in which Kaneko and Egawa constitute analogous teachings. Both Kaneko and Egawa teach combining similar polyvinyl ether base oils and refrigerants.

Applicants allege that comparative example 2 of the instant specification corresponds to example 1 of Egawa, which demonstrates a solubility outside the limitation of instant claim 1 (see Remarks pages 6-7). However, it is unclear how the two cited examples correspond and furthermore, it is unclear where the "solubility of 48.5 mass%" asserted by Applicant is to be found in the instant specification.

Comparative Example 2 of the instant specification is to a propylene oxide only compound which does not appear to be commensurate in scope with the instant claims which are to polyvinyl type compounds (instant formula II). Furthermore, the cited Example 1 of Egawa is to a polymer comprised of a'-only units, i.e. ethyl groups, and does not appear to "correspond" to instant comparative Example 2. Applicant argues

that chain length of the alkyl groups corresponding to R⁵ or R⁶ corresponds to the mutual miscibility of the base oil and refrigerant. However, Egawa teaches the substantially overlapping R and R' units, wherein R is of C1-C3 in length and R' is of C3-C20 in length, which renders obvious the instant R⁵ being methyl and R⁶ being C2-C4 in length. Applicants have failed to demonstrate the criticality of the difference. It is also noted that arguments of counsel cannot take the place of evidence of record (MPEP 716.01(b); *In re Schulze*, 346, F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965).

Applicants comments to global warming as aggravated by the "hydrogen-containing chlorofluoro compounds" of Egawa and Kaneko (see Remarks page 7) are not found persuasive. Kaneko was relied upon to substitute the hydrofluorocarbons of Egawa with hydrocarbons such as propane, butane, etc. (see previous office action and above). As such, Applicants arguments are moot. Furthermore, the MPEP states that attorney arguments/statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding solution of a long-felt need, etc. (MPEP 716.01(b); see also MPEP 2145).

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANE L. STANLEY whose telephone number is (571)270-3870. The examiner can normally be reached on Monday-Thursday, 7:30 am - 5 pm, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1796

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/JLS/